

What is Claimed is:

1. Apparatus for determining when a differential input signal received from a transmitter is a valid signal, the apparatus comprising:

5 a dynamically adjustable signal detector that receives as input the differential input signal and is operative to output a signal indicative of whether the differential input signal is a valid signal based on at least one threshold setting; and

10 control circuitry that receives as input at least one control signal and is operative to set the dynamically adjustable signal detector with the at least one threshold setting based on the at least one control signal.

2. The apparatus of claim 1 wherein the at least one threshold setting includes one of a differential voltage, peak power, and average power.

3. The apparatus of claim 1 wherein the dynamically adjustable signal detector determines whether the differential input signal meets the at least one threshold setting.

4. The apparatus of claim 3 wherein the dynamically adjustable signal detector:

5 outputs a first logic value when the differential input signal meets the at least one threshold setting; and

outputs a second logic value when the differential input signal does not meet the at least one threshold setting.

5. The apparatus of claim 3 wherein the dynamically adjustable signal detector:

outputs a first logic value when the differential input signal meets the at least one threshold setting for a first predetermined time period; and

10 outputs a second logic value when the differential input signal does not meet the at least one threshold setting for a second predetermined time period.

6. The apparatus of claim 1 wherein the at least one control signal is set by programmable logic resource circuitry.

7. The apparatus of claim 1 wherein the at least one control signal is set by circuitry external to a programmable logic resource.

8. The apparatus of claim 1 wherein the at least one control signal is set by user input.

9. The apparatus of claim 1 wherein the dynamically adjustable signal detector receives a new threshold setting in response to detecting a change in signaling protocol.

10. The apparatus of claim 1 wherein the dynamically adjustable signal detector receives a new threshold setting in response to detecting a change in a communications link between the transmitter and a receiver, wherein the change is due to one of component aging and changes in environmental conditions.

11. The apparatus of claim 1 further comprising:

5 a dynamically adjustable equalization circuit that receives as input the differential input signal and boosts high frequency components of the differential input signal for output to the dynamically adjustable signal detector.

12. A digital processing system comprising:  
processing circuitry;  
a memory coupled to the processing circuitry; and  
5 apparatus as defined in claim 1 coupled to the processing circuitry and the memory.

13. A printed circuit board on which is mounted the apparatus as defined in claim 1.

14. The printed circuit board defined in claim 13 further comprising:  
a memory mounted on the printed circuit board and coupled to the apparatus.

15. The printed circuit board defined in claim 13 further comprising:  
processing circuitry mounted on the printed circuit board and coupled to the apparatus.

16. Apparatus for determining when a differential input signal received from a transmitter is a valid signal, the apparatus comprising:  
a dynamically adjustable signal detector  
5 that receives as input the differential input signal and is operative to output a signal indicative of

whether the differential input signal is a valid signal based on a differential voltage threshold; and

10 control circuitry that receives as input at least one control signal and is operative to set the dynamically adjustable signal detector with the differential voltage threshold based on the at least one control signal.

17. The apparatus of claim 16 wherein the dynamically adjustable signal detector computes a difference between a positive terminal and a negative terminal of the differential input signal to produce a 5 differential input voltage.

18. The apparatus of claim 17 wherein the dynamically adjustable signal detector:

outputs a first logic value when the differential input voltage is greater than or equal to 5 the differential voltage threshold; and

outputs a second logic value when the differential input voltage is less than the differential voltage threshold.

19. The apparatus of claim 17 wherein the dynamically adjustable signal detector:

outputs a first logic value when the differential input voltage is greater than or equal to 5 the differential voltage threshold for a first predetermined time period; and

outputs a second logic value when the differential input voltage is less than the differential voltage threshold for a second 10 predetermined time period.

20. The apparatus of claim 16 wherein the at least one control signal includes a value for the differential voltage threshold.

21. The apparatus of claim 16 wherein the at least one control signal is indicative of whether the differential voltage threshold is to be increased or decreased.

22. The apparatus of claim 16 wherein the at least one control signal has a value that corresponds to the differential threshold stored in a lookup table in the control circuitry.

23. The apparatus of claim 16 wherein the at least one control signal is set by programmable logic resource circuitry.

24. The apparatus of claim 16 wherein the at least one control signal is set by circuitry external to a programmable logic resource.

25. The apparatus of claim 16 wherein the at least one control signal is set by user input.

26. A method for determining when a differential input signal received from a transmitter is a valid signal, the method comprising:

5 receiving a new value for a differential voltage threshold;  
computing a difference between a positive terminal and a negative terminal of the differential input signal to produce a differential input voltage;

10 comparing the differential input voltage

to the new value for the differential voltage threshold; and

15 sending an output indicative of whether the differential input signal is valid in response to comparing the differential input voltage to the new value for the differential voltage threshold.

27. The method of claim 26 wherein the new value for the differential voltage threshold is dynamically adjustable.

28. The method of claim 26 further comprising:

5 sending as output a first logic value when the differential input voltage is greater than or equal to the differential voltage threshold; and

sending as output a second logic value when the differential input voltage is less than the differential voltage threshold.

29. The method of claim 26 further comprising:

5 sending as output a first logic value when the differential input voltage is greater than or equal to the differential voltage threshold for a first predetermined time period; and

10 sending as output a second logic value when the differential input voltage is less than the differential voltage threshold for a second predetermined time period.